

A New Species of the Genus *Carex* (Cyperaceae) from Amami-ohshima Island, the Ryukyus, Southern Japan

Teruo KATSUYAMA

Kanagawa Prefectural Museum of Natural History,
499 Iryuda, Odawara-shi, Kanagawa, 250-0031 JAPAN
E-mail: katsu@nh.kanagawa-museum.jp

(Accepted on March 20, 2011)

A new species of the genus *Carex* L. sect. *Graciles* Tuck. ex Kük. from Amami-ohshima Island, *C. tabatae* Katsuy., is here described. This new species is closely related to *C. gentilis* Franch. from Taiwan and south China and *C. tamakii* T. Koyama from Okinawa-jima Island, but it is easily distinguished from the latter two species by having smooth leaves. It also differs from *C. gentilis* in having single (rarely 2-nate) spikes at each node and from *C. tamakii* in having glabrous perigynia. *Carex tabatae* is endemic to Amami-ohshima Island.

Key words: Amami-ohshima, *Carex gentilis*, *Carex tabatae*, *Carex tamakii*, Cyperaceae, new species, taxonomy.

The sedge named to ‘Amami-nakirisuge’ in Japanese was first recorded from Amami-ohshima Island as ‘*Carex gentilis* Franch.?’ by Hatusima and Amano (1994). Hatusima (2004) treated it as identical with *Carex gentilis* Franch. var. *nakaharai* (Hayata) T. Koyama from Taiwan. Recently I found it on the rocks along the Sumiyo River and the Kawauchi River in Amami-ohshima Island. It was similar to *C. gentilis* in having small glabrous perigynia, but it was distinct from the latter in having smooth leaves and single (rarely 2-nate) spikes at each node. I proposed it as a new species, *Carex tabatae* Katsuy. named for Mr. Mitsutake Tabata who is a botanist working on the flora of Amami-ohshima Island.

Carex tabatae Katsuy., sp. nov. [Figs. 1, 2]

Carex gentilis auct. non Franch.: Hatus. & Amano, Fl. Ryukyus: 261. (1994).

Carex gentilis Franch. var. *nakaharai* auct. non T. Koyama: Hatus. in Bull. Kagoshima Univ. Mus. (1): 258 (2004).

Affinis *Carici gentilis* Franch. et *C. tamakii* T. Koyama, sed foliis laevibus, etiam prior spiculis singulis (raro 2-nis), posterior utriculis glabris, diversa.

Type: JAPAN. Kagoshima Pref., Amami-ohshima, Amami-city, Sumiyo-machi, Kamiya, Sumiyo River, alt. 100 m, 20 Oct. 2009, T. Katsuyama & M. Tabata s.n. (KPM-NA 0137280–holo; KAG, KYO, TI, TNS–iso).

Perennial evergreen herbs. Rhizomes short, densely caespitose. Culms 15–60 cm tall, slightly longer than leaves, acutely trigonous, smooth. Leaves basal and cauline; blades flat, 1.5–3 mm wide, stiff, smooth; basal sheaths with leaf blades, dark brown, fibrillose. Flowers September to October. Inflorescence terminal, racemose, with 3–6 spikes on upper 1/5 to 1/3



Fig. 1. *Carex tabatae* Katsuy. on the rocks along Sumiyo River, Amami-ohshima Island, the Ryukyus.

of the culm, solitary (rarely 2) at node; spikes androgynous, staminate section shorter than pistillate one, lower spikes sometimes branching, narrowly cylindrical, 1–2.5 cm long, ca. 2 mm wide, subdensely many-flowered. Bracts leaf-

like, with sheaths, upper blades short, lower blades longer than spikes. Pistillate scales elliptic, shorter than perigynia, 1.5–2 mm long, obtuse to acute, brownish. Perigynia erect to ascending, elliptic, biconvex, 2.5–3 mm long,



Fig. 2. Perigynia of *Carex tabatae* Katsuy. and the related species. A. *C. tabatae*. B. *C. gentilis* var. *nakaharae*. C. *C. tamakii*. D. *C. brunnea*. Scale: 1 mm.

Table 1. Comparison among *Carex tabatae* and the related species in morphological characters

Character	<i>C. tabatae</i>	<i>C. gentilis</i>	<i>C. tamakii</i>	<i>C. brunnea</i>
Leaf surface and margin	smooth	scabrous	scabrous	scabrous
Leaf color	deep green	light green	deep green	light green
Leaf width (mm)	1.5–3	1–4.5	1–2	2–5
Spike number at node	mostly 1	2–4, fasciculate	mostly 1	2–4, fasciculate
Perigynum size (mm)	2.5–3 × 1	2.5–4 × 1	2–2.8 × 1	2.5–3.5 × 1.2
Perigynum surface	glabrous	glabrous	puberulent	puberulent

ca. 1 mm wide, membranaceous, finely several veined, glabrous, shortly stipitate, stipe ca. 0.3 mm long, suddenly narrowed apically to beak, beak to 1 mm long, apex bidentate. Achenes tightly enveloped in the perigynia, elliptic, biconvex, ca. 1.5 mm long, ca. 0.8 mm wide, dark brown or black at maturity. Styles to 1 mm long, base thickened. Stigmas 2, 2–3 mm long, caducose.

Japanese name: Amami-nakirisuge.

新和名: アマミナキリスゲ

Distribution: Endemic to Amami-ohshima Island, the Ryukyus, Japan.

Habitat: On the rocks along the river, alt. 50–200 m.

Additional specimens examined: JAPAN. Kagoshima Pref., Amami-ohshima Island, Amami-city, Sumiyo-machi, Kamiya, Sumiyo River, alt. 100 m, 20 Oct. 2009, T. Katsuyama & M. Tabata s.n. (KPM-NA 0137279, 0137281); *ibid*, 27 Nov. 2007, T. Katsuyama & M. Tabata s.n. (KPM-NA 0129255, 0129257, 0129258, 0129259, 0129260); Amami-city, Sumiyo-machi, Kawauchi, Kawauchi River, alt. 145 m, 20 Oct. 2009, T. Katsuyama & M. Tabata s.n. (KPM-NA 0137289); Ohshima-gun, Yamato-son, Fukumoto, Sumiyo River, alt. 180 m, around Materiya waterfall, 19 Oct. 2009, T. Katsuyama & M. Tabata s.n. (KPM-NA 0137297, 0137298); *ibid*, 26 Nov. 2007, T. Katsuyama & M. Tabata s.n. (KPM-NA 0129245, 0129246).

Carex tabatae belongs to sect. *Graciles* Tuck. ex Kük. and is closely related to *C. gentilis* Franch. from Taiwan and south China in having glabrous perigynia. It is distinct from the latter, however, in having smooth deep green leaves

and single (rarely 2-nate) spikes at each node, while *C. gentilis* has scabrous light green leaves and 2–4-nate spikes.

Carex gentilis is sometimes divided into four variety, var. *gentilis* from Sichuan, Yunnan and Jingxi, var. *intermedia* from Sichuan, Yunnan, Guizhou and Shaanxi, var. *macrocarpa* from Sichuan and var. *nakaharae* from Taiwan in the width of leaf blade and the length of perigynia; var. *gentilis* has leaves 2–3 mm wide and perigynia ca. 2.5 mm long; var. *intermedia* has wider leaves to 4.5 mm wide and perigynia ca. 3 mm long with slightly longer beaks; var. *macrocarpa* has narrower leaves 1–1.5 mm wide and perigynia 3–4 mm long; var. *nakaharae* has leaves 2–3 mm wide and perigynia ca. 3 mm long with rather short beaks (Liang et al. 2000). *Carex tabatae* is more similar to *C. gentilis* var. *nakaharae* than the other varieties of *C. gentilis* in the width of leaves and the length of perigynia.

Koyama et al. (2000) considered *C. gentilis* var. *nakaharae* (Hayata) T. Koyama to be conspecific with *C. brunnea* Thunb. in the broadest sense, but the former is distinguished from the typical *C. brunnea* by its smaller glabrous perigynia. I cannot adopt the treatment of Koyama et al. (2000), and consider that *C. gentilis* var. *nakaharae* is significantly different from *C. brunnea*.

Carex brunnea is common in forests and forest edges in Amami-ohshima, but *C. tabatae*

is restricted to the rocks along the Sumiyo River and the Kawauchi River. *Carex tabatae* is smaller than *C. brunnea* and has smooth deep green leaves, single (rarely 2-nate) spikes at each node and glabrous perigynia that matured in October in Amami-ohshima Island. *Carex brunnea* has, however, scabrous leaves, 2–4-nate spikes and puberulent perigynia that matured in November in the Island.

Carex tamakii T. Koyama which was described on the basis of the specimens collected from Yona, Kunigami-son, Okinawa Prefecture (Koyama 1959), is related to *C. brunnea*, but it differs from the latter in having deep green leaves, single spikes at each node and attenuate beak. In Okinawa-jima Island, *C. brunnea* is common in forests and forest edges, but *C. tamakii* is restricted to rocks along the river like *C. tabatae* in Amami-ohshima Island. *Carex tabatae* resembles *C. tamakii* in having a single spike at each node, but it is easily distinguished from the latter by smooth leaves and glabrous perigynia. *Carex tamakii* has scabrous leaves and puberulent perigynia.

Comparative morphological characters among *C. tabatae* and the related species, *C. gentilis*, *C. tamakii* and *C. brunnea*, are provided

in Table 1 and perigynia of *C. tabatae* and the related species are shown in Fig. 2.

I would like to show my sincere thanks to Mr. Mitsutake Tabata for his help in field survey in Amami-ohshima Island. This study was supported in part by a Grant-in-Aid for Scientific Research (No.21570103 to T. Hoshino, a representative) from the Ministry of Education, Science and Culture, Japan.

References

- Hatusima S. and Amano T. 1994. Flora of the Ryukyus, south of Amami Island. The Biological Society of Okinawa, Naha.
- Hatusima S. 2004. Flora of Kyushu, a list of ferns and flowering plants from Kyushu including the Amami Islands. Bull. Kagoshima University Museum (1): 1–343.
- Koyama T. 1959. Taxonomic Study of *Cyperaceae* 9. Bull. Arts & Sci. Div., Ryukyu Univ. (Math. & Nat. Sci) (3): 65–76.
- Koyama T., Kuoh C.-S. and Leong W.-C. 2000. *Carex*. In: Huang T.-C. (ed.), Flora of Taiwan, 2nd ed. 5: 194–237. The Editorial Committee of the Flora of Taiwan, Second Edition, Taipei.
- Liang S.-Y., Dai L.-K., Tang Y.-C. and Li P.-C. 2000. *Cyperaceae* (2) *Caricoideae*. In: Dai L.-K. and Liang S.-Y. (eds.), Flora Reipublicae Popularis Sinicae Vol.12. 582 pp. Science Press, Beijing (in Chinese).

勝山輝男：奄美大島産スゲ属（カヤツリグサ科）ナキリスゲ節の1新種，アマミナキリスゲ

奄美大島産スゲ属ナキリスゲ節の1新種，アマミナキリスゲ *Carex tabatae* Katsuy. を記載した。アマミナキリスゲは台湾や中国南部に分布する *C. gentilis* Franch. や沖縄のオキナワヒメナキリ *C. tamakii* T. Koyama に似ているが，葉が平滑なことで容易に区別することがで

きる。また，アマミナキリスゲは *C. gentilis* とは小穂が1節に1個ずつつくことが，オキナワヒメナキリとは果胞が無毛なことが異なる。アマミナキリスゲの分布は奄美大島に限られ，住用川や川内川の溪流岩上のみ生える。
(神奈川県立生命の星・地球博物館)